

ABSTRACT

In a compound semiconductor epitaxial substrate used for a strain channel high electron mobility field effect transistor which comprises an InGaAs layer as a channel layer 9 and AlGaAs layers containing n-type impurities as electron supplying layers 6 and 12, the channel layer 9 has an electron mobility at room temperature of $8300 \text{ cm}^2/\text{V}\cdot\text{s}$ or more by adjusting an In composition of the InGaAs layer composing the channel layer 9 to 0.25 or more and optimizing the In composition and the thickness of the channel layer 9. GaAs layers 8 and 10 having a thickness of 4 nm or more each may be laminated respectively in contact with a top surface and a bottom surface of the channel layer 9.